

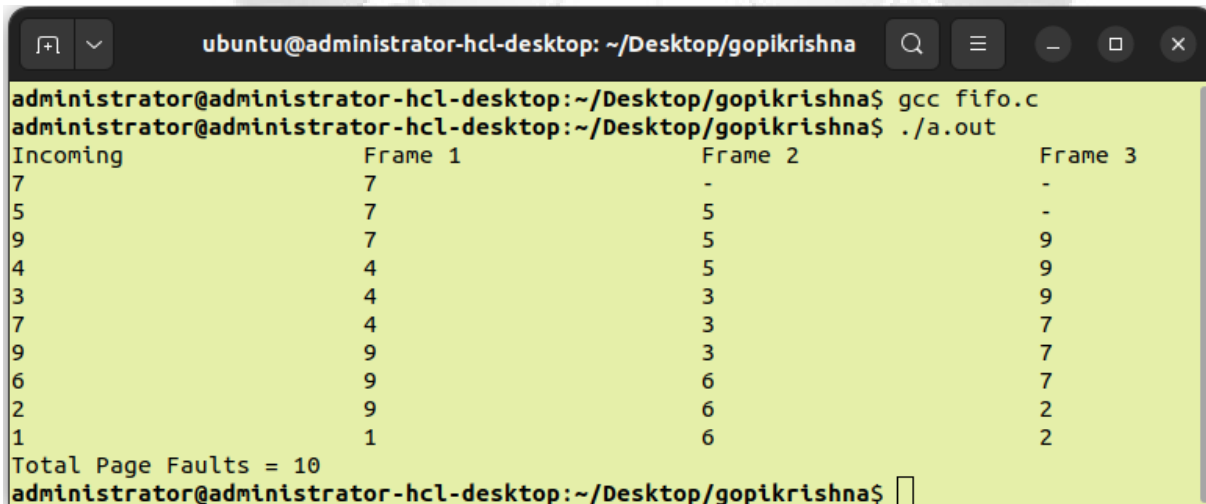
11.1>>FIRST IN FIRST OUT

PROGRAM CODE

```
#include <stdio.h>
int main()
{
    int incomingStream[] = {7, 5, 9, 4, 3, 7, 9,
6, 2, 1};
    int pageFaults = 0;
    int frames = 3;
    int m, n, s, pages;
    pages =
sizeof(incomingStream)/sizeof(incomingStream
[0]);
    printf("Incoming \t\t Frame 1 \t\t Frame 2 \
\t\t Frame 3");
    int temp[ frames ];
    for(m = 0; m < frames; m++)
    {
        temp[m] = -1;
    }
    for(m = 0; m < pages; m++)
    {
        s = 0;
        for(n = 0; n < frames; n++)
        {
            if(incomingStream[m] == temp[n])
            {
                s++;
                pageFaults--;
            }
        }
    }
}
```

```
    }
    }
    pageFaults++;
    if((pageFaults <= frames) && (s == 0))
    {
        temp[m] = incomingStream[m];
    }
    else if(s == 0)
    {
        temp[(pageFaults - 1) % frames] =
incomingStream[m];
    }
    printf("\n");
    printf("%d\t\t\t",incomingStream[m]);
    for(n = 0; n < frames; n++)
    {
        if(temp[n] != -1)
            printf(" %d\t\t\t", temp[n]);
        else
            printf(" - \t\t\t");
    }
    printf("\nTotal Page Faults = %d\n",
pageFaults);
    return 0;
}
```

OUTPUT



```
ubuntu@administrator-hcl-desktop: ~/Desktop/gopikrishna
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ gcc fifo.c
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ ./a.out
Incoming          Frame 1          Frame 2          Frame 3
7                 7                 -                 -
5                 7                 5                 -
9                 7                 5                 9
4                 4                 5                 9
3                 4                 3                 9
7                 4                 3                 7
9                 9                 3                 7
6                 9                 6                 7
2                 9                 6                 2
1                 1                 6                 2
Total Page Faults = 10
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$
```

11.2>>LEAST RECENTLY USED

PROGRAM CODE

```
#include<stdio.h>
int main()
{
    int
```

```
nf,np,pages[100],frames[10],count[10],flag,min,
next=0,i,j,k,fault=0;
    printf("Number Of Frames = ");
    scanf("%d",&nf);
```

```

printf("Number Of Pages = ");
scanf("%d",&np);
printf("Pages >> ");
for(i=0;i<np;i++){
    scanf("%d",&pages[i]);
}
for(i=0;i<nf;i++){
    count[i]=0;
    frames[i]=-1;
}
for(i=0;i<np;i++){
    flag=0;
    for(j=0;j<nf;j++){
        if(frames[j]==pages[i]){
            flag=1;
            count[j]=next;
            next++;
        }
    }
    if(flag==0){
        if(i<nf){
            frames[i]=pages[i];
            count[i]=next;
            next++;
        }
    }
    else{
        min=0;
        for(j=1;j<nf;j++){
            if(count[min]>count[j])
                min=j;
            frames[min]=pages[i];
            count[min]=next;
            next++;
        }
        fault++;
    }
    for(j=0;j<nf;j++){
        printf("%d\t",frames[j]);
    }
    if(flag==0)
        printf("PF no = %d",fault);
    printf("\n");
}
printf("Page Fault = %d\n",fault);
return 0;
}

```

OUTPUT

```

ubuntu@administrator-hcl-desktop: ~/Desktop/g...
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ gcc lru.c
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ ./a.out
Number Of Frames = 3
Number Of Pages = 10
Pages >> 7 5 9 4 3 7 9 6 2 1
7      -1      -1      PF no = 1
7      5      -1      PF no = 2
7      5      9       PF no = 3
4      5      9       PF no = 4
4      3      9       PF no = 5
4      3      7       PF no = 6
9      3      7       PF no = 7
9      6      7       PF no = 8
9      6      2       PF no = 9
1      6      2       PF no = 10
Page Fault = 10
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$

```

11.3>>LEAST FREQUENTLY USED PROGRAM CODE

```

#include<stdio.h>
void print(int frameno,int frame[])
{
    int j;
    for(j=0;j<frameno;j++)
        printf("%d\t",frame[j]);
    printf("\n");
}

```

```

int main()
{
    int
i,j,k,n,page[50],frameno,frame[10],move=0,flag
,count=0,count1[10]={0},
    repindex,leastcount;
    float rate;
    printf("Number Of Pages = ");
    scanf("%d",&n);
    printf("Page Reference Numbers >> ");
    for(i=0;i<n;i++)
    scanf("%d",&page[i]);
    printf("Number Of Frames = ");
    scanf("%d",&frameno);
    for(i=0;i<frameno;i++)
    frame[i]=-1;
    printf("Page Reference String\tFrames\
n");
    for(i=0;i<n;i++)
    {
        printf("%d\t\t\t",page[i]);
        flag=0;
        for(j=0;j<frameno;j++)
        {
            if(page[i]==frame[j])
            {
                flag=1;
                count1[j]++;
                printf("No
Replacement\n");
                break;
            }
        }
        if(flag==0&&count<frameno)
        {
            frame[move]=page[i];

```

```

count1[move]=1;

move=(move+1)%frameno;
count++;
print(frameno,frame);
}
else if(flag==0)
{
    repindex=0;
    leastcount=count1[0];
    for(j=1;j<frameno;j++)
    {
        if(count1[j]<leastcount)
        {
            repindex=j;
            leastcount=count1[j];
        }
    }
    frame[repindex]=page[i];
    count1[repindex]=1;
    count++;
    print(frameno,frame);
}
}
rate=(float)count/(float)n;
printf("Number Of Page Faults = %d\
n",count);
printf("Fault Rate = %f\n",rate);
return 0;
}

```

OUTPUT

```

ubuntu@administrator-hcl-desktop: ~/Desktop/gopikrishna
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ gcc lfu.c
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ ./a.out
Number Of Pages = 10
Page Reference Numbers >> 7 5 9 4 3 7 9 6 2 1
Number Of Frames = 3
Page Reference String   Frames
7                       7       -1      -1
5                       7       5       -1
9                       7       5       9
4                       4       5       9
3                       3       5       9
7                       7       5       9
9                       No Replacement
6                       6       5       9
2                       2       5       9
1                       1       5       9
Number Of Page Faults = 9
Fault Rate = 0.900000
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$

```